

CLAIMS

What is claimed is:

- 5 1. A method comprising a policy administrator:
- establishing a network monitoring digital contract with a network monitoring
 element;
- establishing a network use digital contract with a first and a second network
 element; and
- 10 transmitting decrypting information to the network monitoring element for
 decrypting encrypted communications between the first network element and the
 second network element per terms in the network monitoring digital contract and
 the network use digital contract.
- 15 2. The method of claim 1, wherein transmitting decrypting information to the
 network monitoring element for decrypting encrypted communications between
 the first network element and the second network element per terms in the
 network monitoring digital contract and the network use digital contract
 comprises the policy administrator:
- 20 receiving a request from the network monitoring element for the decrypting
 information;
- transmitting a request to the network monitoring element for the network
 monitoring digital contract;

receiving the network monitoring digital contract from the network monitoring element;

authenticating the received network monitoring digital contract; and

transmitting decrypting keys to decrypt the encrypted communications between

5 the first network element and the second network element to the network monitoring element.

3. The method of claim 1, wherein transmitting decrypting information to the network monitoring element for decrypting encrypted communications between the first network element and the second network element per terms in the network monitoring digital contract and the network use digital contract comprises the policy administrator decrypting the encrypted communications between the network elements and transmitting the decrypted communications to the network monitoring element.

4. The method of claim 1, wherein establishing a network monitoring digital contract with a network monitoring element comprises:
- receiving a network monitoring element's digital certificate;
- authenticating the network monitoring element's digital certificate;
- receiving a network monitoring element's digital signature;
- authenticating the network monitoring element's digital signature;
- writing contract terms in an electronic document;

writing the network monitoring element's digital certificate and the network monitoring element's digital signature in the electronic document;
writing a digital certificate of the policy administrator and a digital signature of the policy administrator in the electronic document; and
5 transmitting a copy of the electronic document to the network monitoring element.

5. The method of claim 4, wherein writing contract terms in an electronic document comprises:

10 writing an effective date and time of the network monitoring digital contract;
writing a time period during which the network monitoring digital contract is valid; and
specifying the decrypting information, including decrypting keys the network monitoring element is to receive.

- 15 6. The method of claim 1, wherein establishing a network use digital contract with each network element comprises:

receiving a network element's digital certificate;
authenticating the network element's digital certificate;
20 receiving a network element's digital signature;
authenticating the network element's digital signature;
writing contract terms in an electronic document;

writing the network element's digital certificate and the network element's digital signature in the electronic document;

writing a digital certificate of the policy administrator and a digital signature of the policy administrator in the electronic document; and

5 transmitting a copy of the electronic document to the network element.

7. The method of claim 6, wherein writing contract terms in an electronic document comprises:

writing an effective date and time of the network use digital contract; and

10 specifying the decrypting information, including decrypting keys the policy administrator obtains from the network element.

8. The method of claim 1 further comprising:

establishing a network policy; and

15 transmitting the network policy to network elements.

9. A method, comprising a network monitoring element:

establishing a network monitoring digital contract with a policy administrator;

transmitting a request to monitor encrypted communications between network elements;

transmitting the network monitoring digital contract; and

20 receiving decrypting information, including decrypting keys from the policy administrator for decrypting encrypted communications between a first network

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element and a second network element per the terms in the network monitoring digital contract.

5 10. The method of claim 9, wherein receiving decrypting information from the policy administrator for decrypting encrypted communications between a first network element and a second network element per the terms in the network monitoring digital contract comprises receiving from the policy administrator decrypted communications after the policy administrator decrypts the encrypted
10 communications between the network elements.

11. The method of claim 9, wherein establishing a network monitoring digital contract with a policy administrator comprises a network monitoring element:
transmitting its digital certificate to the policy administrator;
15 transmitting its digital signature to the policy administrator; and
receiving a copy of the network monitoring digital contract from the policy administrator.

12. A method, comprising:

20 establishing by a first network element, a network use digital contract with a policy administrator;
communicating with a second network element per the terms of the network use digital contract;

logging in a secure manner, encryption and authenticating algorithms, and
decryption keys used in the communication; and
permitting the policy administrator access to the log to obtain the decrypting keys.

- 5 13. The method of claim 12, wherein establishing by a first network element, a
network use digital contract with a policy administrator comprises a network
element:
transmitting its digital certificate;
transmitting its digital signature; and
10 receiving a copy of the network use digital contract from the policy administrator.

14. An article of manufacture comprising:

- a machine-readable medium that provides instructions, that when executed by a
machine, cause said machine to perform operations comprising:
15 establishing a network monitoring digital contract with a network monitoring
element;
establishing a network use digital contract with a first and a second network
element; and
transmitting decrypting information to the network monitoring element for
20 decrypting encrypted communications between the first network element and the
second network element per terms in the network monitoring digital contract and
the network use digital contract.

15. The machine-readable medium of claim 14, wherein said instructions for transmitting decrypting information to the network monitoring element for decrypting encrypted communications between the first network element and the second network element per terms in the network monitoring digital contract and the network use digital contract, include further instructions to direct the policy administrator to receive a request from the network monitoring element for the decrypting information; to receive the network monitoring digital contract from the network monitoring element; to authenticate the network monitoring digital contract; and to transmit decrypting information, including decrypting keys needed to decrypt the encrypted communications between the network elements.

16. The machine-readable medium of claim 14, wherein said instructions for transmitting decrypting information to the network monitoring element for decrypting encrypted communications between the first network element and the second network element per terms in the network monitoring digital contract and the network use digital contract include further instructions to decrypt the encrypted communications between the network elements; and to transmit the decrypted communications to the network monitoring element.

17. The machine-readable medium of claim 14, wherein said instructions establishing a network monitoring digital contract between a policy administrator and a network monitoring element include further instructions to receive a network monitoring element's digital certificate and digital signature; to authenticate the

network monitoring element's digital certificate and digital signature; to write the contract terms, including an effective date and time of the network monitoring digital contract; to specify a time period during which the network monitoring digital contract is valid; to specify the decrypting information, including
5 decrypting keys the network monitoring element is to obtain in an electronic document; to write the network monitoring element's digital certificate and digital signature in the electronic document; to write a digital certificate and a digital signature of the policy administrator in the electronic document; and to transmit a copy of the electronic document to the network monitoring element.

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18. The machine-readable medium of claim 14, wherein said instructions establishing a network use digital contract between the policy administrator and network elements include further instructions to receive a network element's digital certificate and digital signature; to authenticate the network elements digital
15 certificate and digital signature; to write contract terms, including an effective date and time of the network use digital contract; to specify the decrypting information, including decrypting keys the policy administrator is to obtain in an electronic document; to write the network element's digital certificate and digital signature in the electronic document; to write a digital certificate and a digital
20 signature of the policy administrator in the electronic document; and to transmit a copy of the electronic document to the network element.

19. The machine-readable medium of claim 14, wherein said instructions include further instructions to establish a network policy; and to transmit the network policy to network elements.

5 20. An article of manufacture comprising:

a machine-readable medium that provides instructions, that when executed by a machine, cause said machine to perform operations comprising:

establishing a network monitoring digital contract with a policy administrator;

transmitting a request to monitor encrypted communications between network elements;

transmitting the network monitoring digital contract; and

receiving decrypting information, including decrypting keys from the policy administrator for decrypting encrypted communications between a first network element and a second network element per the terms in the network monitoring digital contract.

21. The machine-readable medium of claim 20, wherein said instructions for receiving decrypting information from the policy administrator for decrypting encrypted communications between a first network element and a second network element per the terms in the network monitoring digital contract include further instructions to receive from the policy administrator decrypted communications after the policy administrator decrypts the encrypted communications between the network elements.

22. The machine-readable medium of claim 20, wherein said instructions for establishing a network monitoring digital contract with a policy administrator include further instructions for a network monitoring element to transmit its digital certificate to the policy administrator; to transmit its digital signature to the policy administrator; and to receive a copy of the network monitoring digital contract from the policy administrator.

23. An article of manufacture comprising:

a machine-readable medium that provides instructions, that when executed by a machine, cause said machine to perform operations comprising:

establishing by a first network element, a network use digital contract with a policy administrator;

communicating with a second network element per the terms of the network use digital contract;

logging in a secure manner, encryption and authenticating algorithms, and decryption keys used in the communication; and

permitting the policy administrator access to the log to obtain the decrypting keys.

24. The machine-readable medium of claim 23, wherein said instructions for establishing by a first network element, a network use digital contract with a policy administrator include further instructions for a network element to transmit its digital certificate; to transmit its digital signature; and to receive a copy of the network use digital contract from the policy administrator.

25. An apparatus comprising:

a receiver to receive a request for decrypting information, and to receive a network monitoring digital contract from a network monitoring element;
a microprocessor communicatively coupled to said receiver and a memory, to authenticate the network monitoring digital contract; and
a transmitter communicatively coupled to said microprocessor and memory to transmit a network policy and decrypting information, including decrypting keys to decrypt encrypted communications between network elements.

26. The apparatus of claim 25, wherein the microprocessor retrieves from the memory decrypting information including decrypting keys, to decrypt the encrypted communications between the network elements and to transmit the decrypted communications to the network monitoring element.

27. The apparatus of claim 25, wherein the microprocessor retrieves from a network element decrypting information including decrypting keys and the transmitter transmits the decrypting information to the network monitoring element.

28. An apparatus comprising:

a receiver to receive a network monitoring digital contract, and decrypting information, including decrypting keys from a policy administrator;

said receiver to receive encrypted communications between a first network element and a second network element;

a microprocessor communicatively coupled to the receiver and a memory, said memory to store the network monitoring digital contract, and to use the

5 decrypting information, including the decrypting keys to decrypt the encrypted communications between the first and the second network element;

a transmitter communicatively coupled to the microprocessor and the memory to transmit a request to the policy administrator for the decrypting information, including the decrypting keys to decrypt the encrypted communications between

10 the first and the second network element, and to transmit the network monitoring digital contract to the policy administrator.

29. The apparatus of claim 28, wherein the receiver receives decrypted communications from the policy administrator.